

**The Second International Symposium on
“Application of Nano-Geosciences in Petroleum Engineering”
on 26-27 November, 2012, Kyoto**

Program

Monday, 26 November, 2012

9:20-9:55 Registration

Opening and Special Lecture on Nanotechnology

9:55-10:00 Opening

Toshifumi Matsuoka (Kyoto University)

10:00-10:40 Sergio D. Kapusta, SHELL E&P Inc., USA

Nanotechnology applications in oil and gas exploration and production (**Keynote**)

Characterization of the Pore Structure and Multiphase Flow in Porous Media

Chairperson: Toshifumi Matsuoka and Amos Nur

10:40-11:20 Edo S. Boek, Imperial College London, UK

Multi-scale flow experiments, imaging and simulation (**Keynote**)

11:20-11:50 Kyriakos D. Papadopoulos, Tulane University, USA

Visualization and quantification of two-phase flow in transparent miniature packed beds (**Invited**)

11:50-12:10 Hirotatsu Yamabe, Yunfeng Liang, and Toshifumi Matsuoka, Kyoto University; and Takeshi Tsuji, Kyushu University, Japan

Two-phase Lattice Boltzmann simulation study on flow pattern in a silty sand model

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12:10-12:30 Shinya Tsuji and Ziqiu Xue, RITE; Toshifumi Matsuoka, Kyoto University

Development of carbon dioxide microbubble sequestration into saline aquifer

12:30-13:30 Lunch

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EOR techniques and its fundamentals

Chairperson: Satoru Takahashi and Edo S. Boek

EOR-1: Gas Injection

13:30-14:00 Valerio Parasiliti Parracello, M. Bartosek, M. De Simoni, C. Mallardo, ENI E&P, Italy

Experimental evaluation of CO₂ injection in a heavy oil reservoir (Invited)

14:00-14:30 Bo Peng, China University of Petroleum, China

Evaluation for CO₂ Storage and Enhanced Oil Recovery in Liaohe Oil Field (Invited)

14:30-14:50 Satoshi Iwasaki, Yunfeng Liang, and Toshifumi Matsuoka, Kyoto University, Satoru Takahashi, JOGMEC, Japan; Ryosuke Okuno, University of Alberta, Canada

Predictions of three phase behavior for n-alkanes binary mixtures using molecular simulations

EOR-2: Polymer Injection

14:50-15:20 Sumihiko Murata and Akihisa Ashida, Kyoto University; Satoru Takahashi and Hiroshi Okabe, JOGMEC, Japan

Study on effective in-depth profile modification to heterogeneous reservoirs (Invited)

15:20-15:50 Coffee break & Photographs

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EOR-3: Asphaltenes

15:50-16:20 Keng C. Chou, University of British Columbia, Canada

Studies of bitumen on mineral surfaces using nonlinear optical spectroscopy (Invited)

**16:20-16:50 Ryuzo Tanaka, Advanced Technology and Research Institute, Japan
Petroleum Energy Center (JPEC); Nao Yoshimura, Advanced Technology Research
Laboratories, Idemitsu Kosan Co., Ltd., Japan**

Asphaltene aggregation analysis with high temperature XRD measurements (Invited)

**16:50-17:20 Masato Morimoto, Shinya Sato, Toshimasa Takanohashi, National Institute of
Advanced Industrial Science and Technology (AIST); Takeshi Morita and Keiko
Nishikawa, Chiba University, Japan**

Concentration-Specific Asphaltene Nanoaggregation in Toluene (Invited)

17:20-17:40 Takaaki Uetani, Haruo Maeda, and Nintoku Yazawa, INPEX, Japan

Effect of Asphaltene on the Development of the Minami Kuwayama Field in Japan (Invited)

**17:40-18:00 Yohei Mikami, Yunfeng Liang and Toshifumi Matsuoka, Kyoto University,
Japan; Edo S. Boek, Imperial College London, UK**

Molecular Dynamics Study on the Oil-Asphaltene-Water System

18:00 Dinner

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Special lecture on Nano-Geosciences and Nanotechnology

Chairperson: Sergio D. Kapusta and Sunao Takagi

9:20-10:00 Susan Stipp, University of Copenhagen, Denmark

Nanometer scale insights into controls on surface wetting (**Keynote**)

**10:00-10:30 Masaei Ito, Osamu Osawa, Toru Noguchi, Hiroyuki Ueki, Kenji Takeuchi
and Morinobu Endo, Schlumberger & Shinshu University**

Novel CNT-Polymer Nanocomposites used in Oilfield for HPHT Sealing System (**Keynote**)

10:30-10:40 Coffee break

Flows in Fractured Media and Shale Gas Exploration

Chairperson: *ibid.*

10:40-11:20 Amos Nur, Ingrain Inc. and Stanford University, USA

Digital rockphysics for shales (**Keynote**)

11:20-11:40 Takashi Akai, JOGMEC

Evaluation of shale pore size distribution by N₂ adsorption test

11:40-12:10 Phan Ngoc Trung, VPI; Le Ngoc Son, Petrovietnam

Fractured basement reservoir: potential for nanotechnology application (**Invited**)

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12:10-12:30 Tadayoshi Tarui and Sumihiko Murata, Kyoto University, Japan

Two-phase flow in single fracture affected by connections among fractures

12:30-13:30 Lunch break

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CO₂ Geo-Sequestration

Chairperson: Bo Peng and Phan Ngoc Trung

13:30-14:00 Stefan Iglauer, Curtin University, Australia

Multi-phase flow through porous media: Implications for residual and structural storage capacities

(Invited)

14:00-14:30 Suguru Uemura, Yohei Matsui, Atsuto Noda, Shohji Tsushima, Shuichiro Hirai, Tokyo Institute of Technology, Japan

Nano-scale liquid CO₂ droplet technology for advanced CCS (Invited)

14:30-14:50 Takeshi Tsuji, Kyushu University; Hirotatsu Yamabe and Toshifumi Matsuoka, Kyoto University, Japan

Migration of supercritical CO₂ in porous media under several PT conditions: Insight into CO₂ saturation monitoring from elastic velocity and resistivity (Invited)

14:50-15:00 Coffee break

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Oil-Water-Rock Interactions

Chairperson: Susan Stipp and Yasuhiro Fukunaka

Interface-1: Mineral Surfaces

15:00-15:30 Laura Hamm and Ian Bourg, Lawrence Berkeley National Lab, USA

Controls on Carbonate Nucleation by the Free Energy of the Organic - Inorganic Interface (Invited)

15:30-16:00 Mingyuan Li, China University of Petroleum, China

Hydrophilicity of sandstone and electrical forces (Invited)

16:00-16:20 Kazuya Kobayashi, Yunfeng Liang and Toshifumi Matsuoka, Kyoto University, Japan; Ian C. Bourg, Lawrence Berkeley National Lab, USA

Molecular dynamics study of aqueous NaCl and CsCl solutions in cement pores

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Interface-2: Nano-Particles

16:20-16:50 Tetsuo Sakka, Kyoto University, Japan

Formation of particle monolayer at liquid-liquid interface and the interparticle interactions (Invited)

16:50 -17:20 Caetano R. Miranda, Universidade Federal do ABC (UFABC), Brazil

Characterization of hydrocarbon and nanoparticle adsorption on mineral surfaces through advanced First Principles techniques (Keynote)

17:20-17:50 Ryo Murakami, Konan University, Japan

Stabilization of oil-in-water-in-air materials by colloidal particles (Invited)

17:50- Closing Remarks

Toshifumi Matsuoka (Kyoto University)